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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,653	11/20/2000	Eric R. Alling	50807	8386
21874	7590	03/02/2006		
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			EXAMINER FERNANDEZ RIVAS, OMAR F	
			ART UNIT 2129	PAPER NUMBER
DATE MAILED: 03/02/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/716,653

Applicant(s)

ALLING ET AL.

Examiner

Omar F. Fernández Rivas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to a request for continued examination entered July 29, 2004 for the patent application 09/716,653 filed on November 21, 2000.
2. The Office Actions of March 29, 2004 and November 25, 2003 are fully incorporated into this Non-Final Office Action by reference.

Status of Claims

3. Claims 1-14 have been canceled. Claims 15-34 had been previously presented and claims 35-36 are new. Claims 15-36 are pending on this application.

Information Disclosure Statement

4. Applicant is respectfully reminded of the ongoing duty to disclose under 37 C.F.R. 156 all pertinent information and material pertaining to the patentability of applicant's claimed invention by submitting in a timely manner a PTO-1449, Information Disclosure Statement (IDS) with the filing of the application or thereafter.
- 5.

Claim Rejections - 35 USC § 112

6. Claims 27 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 27, there is recited: "...what type of **void defect** the defective circuit board contains". It is unclear to the examiner what **void defect** means and no

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explanation is made either in the specifications or in the claims as to what this limitation means.

Regarding claim 35, there is recited: "...determining a type of **void defect**, said images corresponding to said potential responses including a **rim void** and a **resist plug void** image". It is unclear to the examiner what **void defect**, **rim void** and **resist void** mean and no explanation is made either in the specifications or in the claims as to what these limitations mean.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15-25 and 28-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Skaaning et al (US Patent #6,535,865, referred to as **Skaaning**).

Claim 15, 28 and 34

Skaaning anticipates a system for diagnosing a fault (**Skaaning**: abstract, L1-2, C5, L32-33; a troubleshooter is a system for diagnosing faults or problems in a system) the system comprising:

a knowledge base including a plurality of fault diagnoses and fault symptom queries, wherein each said fault symptom query includes potential responses and images that correspond to the potential responses (**Skaaning**: C6, L1-9; C8, L1-25; C8, L66-67, C9 L1-16; C35, L9-12; C43, claims 1 and 2; Figs. 1,2 and 4; the information stored on each node is a knowledge base with information on their respective functions (indicator node, cause node or troubleshooting node). The pictures presented to the user must be related to the suggestions or responses given by the troubleshooter so that the user can make his selection);

a decision tree module including a decision tree having a plurality of decision points each corresponding to one of the fault symptom queries and a plurality of resolution points each corresponding to one of the fault diagnoses, wherein each said potential response in the decision tree indicates one of the decision points or one of the resolution points and one of said decision points is identified as a starting decision point (**Skaaning**: C5, L5-24; C8, L1-16; C25, L23-67, C26 L1-2; Figs. 1,5,8,9,10A-10E and 11; a Bayesian network is a decision tree module, decision points are nodes in the Bayesian network, queries are the questions made on each troubleshooting step and resolution points are the suggested actions to solve the problem which are stored in nodes in the network);

a user interface module in communication with said decision tree module, said knowledge base and a user access device (**Skaaning**: C8, L1-22; Figs. 1 and 2; a video display is a user interface module and the customer PC is a user access device), said user interface module including instructions to implement a method comprising:

designating the starting decision point as the next decision point (**Skaaning**: C25, L1-67, C26, L1-2; C33: 19-67, C34 L1-2; Figs. 6-9, 10A-10E and 11; designating the starting decision point as the next decision point is performed by the interactions between the arcs of the net when the tree is being searched to find a solution to the problem);

transmitting the fault symptom query corresponding to the next decision point to the user access device (**Skaaning**: C8, L1-16, C8, L26-31; Fig. 3, Fig. 12; providing suggestions to the user is transmitting fault symptoms queries corresponding to each decision point);

receiving a reply including one of the potential responses (**Skaaning**: C35, L5-36; Fig. 12; a reply is the suggestion made by the troubleshooter);

continuing said transmitting the fault symptom query and receiving a reply until said one of the potential responses indicates one of the resolution points, wherein if said one of the potential responses indicates one of the decision points then said one of the decision points is designated as the next decision point (**Skaaning**: C35, L5-36; Fig. 12; the process iterates until a solution is found. Asking questions designate another decision point);

transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device (**Skaaning**: C8, L1-16; Fig. 1; the user's PC is the user access device).

Claim 16 and 29

Skaaning anticipates the fault diagnoses include diagnostic images (**Skaaning:** C6, L1-9; C35, L9-12; illustrations of the problems are diagnostic images).

Claim 17 and 30

Skaaning anticipates the fault diagnoses include a description of the fault (**Skaaning:** C27, L34-67; C28, L1-49; Figs. 7-8; the suggestions provide a description of the fault).

Claims 18 and 31

Skaaning anticipates the fault diagnoses include a likely cause of the fault (**Skaaning:** C5, L5-16; C8, L1-16; C27, L34-67, C28, L1-49; the suggestions present a likely cause of the fault).

Claims 19 and 32

Skaaning anticipates the fault diagnoses include recommended remedial actions (**Skaaning:** C5, L5-16; C8, L1-16; C8, 26-31).

Claim 20

Skaaning anticipates a user accessing the user access device is a customer (**Skaaning:** C8, L32-34).

Claim 21

Skaaning anticipates a user accessing the user access device is a customer support representative (**Skaaning:** C6, L22-40; if control is given to the experienced support agent, he is accessing the user access device).

Claim 22

Skaaning anticipates the fault relates to a technical product (**Skaaning**: Abstract, L1-2; C5, L32-33; a printer is a technical product).

Claim 23

Skaaning anticipates the fault relates to a technical service (**Skaaning**: C8, L32-56; a malfunction in a printer system is a fault in a technical service).

Claim 24

Skaaning anticipates the user access device is a personal computer (**Skaaning**: C8, L1-16, Fig. 1).

Claim 25

Skaaning anticipates the communication between the user interface module and the user access device is via the Internet (**Skaaning**: C8, L1-16, Fig. 1).

Claim 33

Skaaning anticipates the fault relates to a technical product or technical service (**Skaaning**: Abstract, L1-2; C5, L32-33; C8, L32-56).

Claim Rejections - 35 USC § 103

Claims 26-27 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skaaning, ^{as set forth above} ~~et al~~ in view of Buenzli, Jr. et al (US Patent #6,535,865, referred to as **Skaaning**; US Patent #5,157,668, referred to as **Buenzli**).

Claim 26

Skaaning does not teach the fault is a defective circuit board.

Buenzli teaches the fault is a defective circuit board (**Buenzli**: abstract, L1-4, L15-17; C23, L35-37; an electronic circuit or unit is considered to be a circuit board).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by detecting a fault in a defective circuit board as taught by Buenzli for the purpose of determining if a component in the circuit board can be replaced to solve the problem or if the entire board should be replaced.

Claim 27

Skaaning does not teach the fault symptom query is directed to a determination of what type of void defect the defective circuit board contains.

Buenzli teaches the fault symptom query is directed to a determination of what type of void defect the defective circuit board contains (**Buenzli**: abstract, L15-17).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by making the fault symptom query directed to a determination of what type of void defect the defective circuit board contains as taught by Buenzli for the purpose of determining what component in the circuit board is producing the fault so that it can be replaced.

Claim 35

Skaaning teaches a knowledge base including a plurality of fault diagnoses and fault symptom queries wherein said fault diagnoses include diagnostic images, a

description of the fault, and a likely cause of the fault (**Skaaning**: C6, L1-9; C8, L1-25; C8, L66-67, C9 L1-16; C35, L9-12; C43, claims 1 and 2; Figs. 1,2 and 4; the information stored on each node is a knowledge base with information on their respective functions (indicator node, cause node or troubleshooting node). The pictures presented to the user must be related to the suggestions or responses given by the troubleshooter so that the user can make his selection. The suggestion provide a description and a likely cause of the fault).

a decision tree module including a decision tree having a plurality of decision points each corresponding to one of the fault symptom queries and a plurality of resolution points each corresponding to one of the fault diagnoses, wherein each said potential response in the decision tree indicates one of the decision points or one of the resolution points and one of said decision points is identified as a starting decision point (**Skaaning**: C5, L5-24; C8, L1-16; C25, L23-67, C26 L1-2; Figs. 1,5,8,9,10A-10E and 11; a Bayesian network is a decision tree module, decision points are nodes in the Bayesian network, queries are the questions made on each troubleshooting step and resolution points are the suggested actions to solve the problem which are stored in nodes in the network);

a user interface module for providing customer support, said user interface module being in communication with said decision tree module, said knowledge base and a user access device (**Skaaning**: C8, L1-22; Figs. 1 and 2; a video display is a user interface module and the customer PC is a user access device), said user interface module including instructions to implement a method Comprising:

designating the starting decision point as the next decision point (**Skaaning**: C25, L1-67, C26, L1-2; C33: 19-67, C34 L1-2; Figs. 6-9, 10A-10E and 11; designating the starting decision point as the next decision point is performed by the interactions between the arcs of the net when the tree is being searched to find a solution to the problem);

Skaaning teaches transmitting the fault symptom query corresponding to the next decision point to the user access device (**Skaaning**: C8, L1-16, C8, L26-31; Fig. 3, Fig. 12; providing suggestions to the user is transmitting fault symptoms queries corresponding to each decision point)

receiving a reply including one of the potential responses (**Skaaning**: C35, L5-36; Fig. 12; a reply is the suggestion made by the troubleshooter);

continuing said transmitting the fault symptom query and receiving a reply until said one of the potential responses indicates one of the resolution points, wherein if said one of the potential responses indicates one of the decision points then said one of the, decision points is designated as the next decision point (**Skaaning**: C35, L5-36; Fig. 12; the process iterates until a solution is found. Asking questions designate another decision point);

Skaaning does not teaches each said fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of void defect, said images corresponding to said potential responses including a rim void image and a resist plug void image; and

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transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of void defect.

Buenzli teaches each said fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of void defect, said images corresponding to said potential responses including a rim void image and a resist plug void image (**Buenzli**: abstract, L15-24; C8, L48-61; C9, L55-67; C22, L44-68, C23, 1-27; C23, L61-66; Figs. 8 and 11a-11d; by troubleshooting a circuit, queries are being made to locate the fault. A schematic of the block being tested will show the components in that block) and transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of void defect (**Buenzli**: C22, L44-68, C23, 1-27; the void defect is transmitted to the system response window).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by making each fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of void defect, said images corresponding to said potential responses including a rim void image and a resist plug void image and transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of void defect as taught by Buenzli for the purpose providing the user with a graphical representation of the system and the location of the fault so that isolation or correction of the fault can be made easier to the user.

Claim 36

Skaaning teaches transmitting a recommended remedial action based on the fault diagnosis to the user access device (**Skaaning**: C5, L5-16; C8, L1-16; C8, 26-31; C35, L5-36, Fig. 12).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kung US Patent #5,388,189

Lynne et al Us Patent #5,448,722

Douik et al US Patent #6,012,152

9. Claims 15-36 are rejected.

Correspondence Information

10. Any inquires concerning this communication or earlier communications from the examiner should be directed to Omar F. Fernández Rivas, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-2589 or email omar.fernandezrivas@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (571) 273-8300.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, David Vincent, may be reached at (571) 272-3080.

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Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Omar F. Fernández Rivas
Patent Examiner
Artificial Intelligence Art Unit 2129
United States Department of Commerce
Patent & Trademark Office

Friday, February 24, 2006

OFR


DAVID VINCENT
SUPERVISORY PATENT EXAMINER